REMARKS

Claims 1 and 2 are rejected under 35 USC 103(a) based on Wolk (US 6,194,119) in view of Gaudiana *et al.* (US 6,624,839). Claim 4 is rejected under 35 USC 103(a) based on Wolk (US 6,194,119) in view of Kunimoto *et al.* (US 6,258,954) and Gaudiana *et al.* (US 6,624,839).

The present rejections differ little from the rejections that were on appeal. The rejection of claims 1 and 2 drops Jackson *et al.* as a reference. In terms of its rationale, there are very slight differences, as revealed by a side-by-side comparison of the language.

- The examiner now states that the deposit of color filters prior to depositing light emitter onto the substrate "[satisfies] the requirement of the color filters are deposited on one side of the substrate."
- Language that "forming the color filter on either side of the OLED device is well known and conventional as shown for example by Gaudiana *et al.*" has been replaced by "forming an unpatterned light-emitting layer(s) is well known and conventional as shown for example by Gaudiana *et al.*"
- Language has been added to state that "the light emitting layer emits a broad range of wavelengths for example, over the entire visible range as a white emitter and relied on the color filters to change the wavelength, which allows the electroluminescent layer, *i.e.*, light-emitting layer, to be deposited on the hole transport layer continuously and not in patterned arrays" (citing Gaudiana *et al.*)
- Instead of relying on Jackson *et al.* as suggesting an unpatterned layer, the examiner relies on Gaudiana *et al.* ("to provide the light-emitting layer as unpatterned layer(s) as disclosed by Gaudiana *et al.*")
- The examiner now adds that it would have been obvious to "[define the radiation emission areas] by the color filters and eliminate the need to pattern the electroluminescent layer, *i.e.*, light-emitting layer(s) and allows for continuous deposit of the light-emitting layers(s).

The new rejection addresses only one of the arguments made in applicant's Brief, that "Wolk does discuss the use of donors but all of his emissive layers are patterned, and Jackson *et al.* describe ***only single unpatterned pixels***, and not the combination of an ***unpatterned emissive layer*** in combination with a color filter array as in the present invention." It does not, however, adequately address another key point raised in applicant's Brief on Appeal, namely that "the combination of references fails to suggest a method of making an OLED in which a

donor element transfers an unpatterned emissive layer as recited in claim 1" (see Brief at Section 7.a.ii.) Claim 1 recites "moving one or more coated donor elements into a transfer position relative to the hole-transporting layer and transferring emissive material from the donor elements onto the hole-transporting layer to form one or more unpatterned light-emitting layer(s) which are capable of emitting white light." As previously noted, there is no counterpart to this in the cited documents, and ***unpatterned transfer*** of an emissive layer from a donor element was not suggested by the prior combination of Wolk, Guadiana *et al.* and Jackson *et al.*, or the present combination of Wolk and Guadiana *et al.*

The examiner still has failed to identify a teaching in the cited documents of transfer of an unpatterned layer from a donor element. He now carefully urges that forming an unpatterned light-emitting layer is "known and conventional" as disclosed by Gaudiana *et al.*, and that it would have been obvious to define the radiation emission areas by the color filters and eliminate the need to pattern the electroluminescent layer to allow for continuous deposit of the light-emitting layers. But there are many ways of continuously depositing a light-emitting layer, and he has failed to explain why it would have been obvious to make an unpatterned layer ***by transfer from a donor element.*** That reason must be apparent from the art of record, and ***cannot be a hindsight reconstruction of the present invention based on that which only is taught by applicant.***

Obviousness can only be established by combining or modifying the teachings of the prior art to produce the claimed invention where there is some teaching, suggestion, or motivation to do so found either explicitly or implicitly in the references themselves or in the knowledge generally available to one of ordinary skill in the art. "In determining the propriety of the Patent Office case for obviousness in the first instance, it is necessary to ascertain whether or not the reference teachings would appear to be sufficient for one of ordinary skill in the relevant art having the reference before him to make the proposed substitution, combination, or other modification." *In re Linter*, 458 F.2d 1013, 1016, 173 USPQ 560, 562 (CCPA 1972). The Federal Circuit has emphasized that the level of skill in the art cannot be relied upon to provide the suggestion to combine references. *Al-Site Corp. v. VSI Int'l Inc.*, 174 F.3d 1308, 50 USPQ2d 1161 (Fed. Cir. 1999). Here the necessary teaching, suggestion, or motivation is missing. The mere fact that unpatterned layers are "known" is not tantamount

to a finding that the making of such layers by donor transfer would have been obvious. Wolk and Gaudiana *et al.*, taken alone or in combination, fail to suggest a method of making an OLED in which a donor element transfers an unpatterned emissive layer as recited in claim 1, for reasons detailed above.

Wolk is representative of well known teachings in the art that donor elements are effective in forming ***patterned*** emissive layers. Applicant is the first to recognize that thermal transfer can be used to transfer emissive material from a donor to form one or more unpatterned light-emitting layer(s). Clearly there is no motivation to be found in the combination of Wolk and Gaudiana *et al.* for the subject matter of claim 1, in which donor transfer is used for an ***unpatterned*** layer. The mere fact that unpatterned emissive layers are known in the art would not provide the motivation to make those layers by transfer from a donor element, absent some teaching in the art leading the skilled artisan in that direction. Application of the teaching in Gaudiana *et al.* of unpatterned layers to that which is disclosed in Wolk would not lead to a process as presently claimed, and no *prima facie* case of obviousness exists.

While no *prima facie* case of obviousness exists with respect to transferring an unpatterned layer by donor transfer, it more particularly would not have been obvious to modify Wolk of form an unpatterned light-emitting layer that is capable of emitting ***white light***. Wolk sequentially deposits red, green and blue emitters in different areas of the receptor, thereby to form a device with red, green and blue pixels. Red, green and blue emitters deposited at different pixel locations produce ***full color devices*** and do not "correspond to white light emitters." Thus, Wolk discloses that "another method for forming a ***full color device*** includes depositing columns of hole transport layer material and then sequentially depositing red, green, and blue electron transport layer/emitter multicomponent transfer units".[1] The proposed modification of Wolk based on Gaudiana *et al.* impermissibly changes the principle of operation of Wolk. If a proposed modification or combination of the prior art would change the principle of operation of the prior art invention being modified, then the teachings of the references are not sufficient to render the claims *prima facie* obvious. MPEP 2143, citing *In re Ratti*, 270 F.2d 810, 123 USPQ 349 (CCPA 1959). The

device of Wolk teaches imagewise transfer from a donor element in order to produce a device in which emissive materials that emit specified different colors, *e.g.*, red, green and blue, are deposited at different positions. The addition of an unpatterned white light emitting layer to Wolk would change entirely the principle of operation of Wolk, and thus is impermissible under MPEP 2143.

With respect to claim 2, the examiner previously urged that "Wolk discloses the material on the transfer donor element can be patterned via selective thermal transfer from the donor to a receptor, which forms any pattern such as line, circle, square, or other shape" and now adds that "Furthermore, the patterning can be done by thermal transferring of the layers from one donor to another donor to transfer the material."[2] This continues to evidence a misunderstanding of what claim 2 recites.

Wolk discloses patternwise transfer from a donor to a receptor. In this process, portions of the layer coated on a donor element are selectively transferred to the device:

> Materials can be patterned onto substrates by ***selective thermal transfer of the materials from one or more thermal transfer elements***. A thermal transfer element can be heated by application of directed heat on a selected portion of the thermal transfer element...In many instances, thermal transfer using light from, for example, a lamp or laser, is advantageous because of the accuracy and precision that can often be achieved. The size and shape of the transferred pattern (*e.g.*, a line, circle, square, or other shape) can be controlled by, for example, selecting the size of the light beam, the exposure pattern of the light beam, the duration of directed beam contact with the thermal transfer element, and the materials of the thermal transfer element.[3]

The examiner is correct in stating that Wolk discloses that "selective thermal transfer from the donor to a receptor [can form] any pattern." However, claim 2 does not recite patches of material ***on the receptor*** as a result of selective thermal transfer. Claim 2 relates to a series of coated patches formed ***on the donor element***, and not to a series of patches formed ***on the receptor*** as may be the case following Wolk's selective transfer and is what the

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[1] U.S. 6,194,119, at column 18, lines 13-17
[2] Official Action at page 3, lines 17-21.
[3] U.S. 6,194,119 at column 4, lines 29-45 (emphasis added).

examiner alleges. The coated patches of claim 2 are used in the unpatterned transfer that is described in claim 1.

Thus, claim 2 recites that the donor element is a flexible web having a series of coated patches of transferable emissive material which are sequentially moved to the transfer position and heated by radiation to cause material transfer. In this embodiment, each of the coated patches is used in the process of forming an unpatterned white light emitting layer. A flexible web has a series of coated patches of transferable emissive material, each at least as large as the substrate.[4] Each patch can be sequentially moved to the transfer position with the OLED substrate and heated by radiation to cause material transfer. Two or more layers of emissive material can be sequentially transferred to OLED substrate, and the different patches can include different emissive materials. For example, a first coated patch of transferable emissive material can include a light-emitting yellow dopant, while a second coated patch of transferable emissive material can include a light-emitting blue dopant. Together, the two layers produce a light-emitting OLED device which is capable of emitting white light.[5]

Each patch is at least as large as the substrate, and is transferred in its entirety to the substrate to form an unpatterned layer. If the patches on the flexible web were patterned then they would also produce a patterned layer on the substrate, which would directly conflict with the recitation in claim 1 that the material is transferred to form an unpatterned light-emitting layer.

In summary, Wolk discloses selective transfer from a donor element that has a contiguous layer of material that is selectively transferred to a receptor in imagewise fashion. Claim 2 relates to nonselective ("unpatterned") transfer from a donor element that has discontinuous patches of material that is nonselectively transferred to a receptor to produce an unpatterned light-emitting layer. No *prima facie* case of obviousness exists.

Claim 4 also would not have been obvious under 35 USC 103(a) based on Wolk (US 6,194,119) in view of Kunimoto et al. (US 6,258,954) and Gaudiana *et al.* (US 6,624,839). The rejection of claim 4 substitutes Guadiana *et al.* for Jackson *et al.*, and

[4] Specification at page 26, lines 10-13 ("Flexible web 190...can have a series of coated patches of transferable emissive material, each at least as large as substrate 20").
[5] Specification at page 26, lines 10-22.

the basis for relying on Gaudiana *et al.* is the same as for claims 1 and 2. That is, the examiner alleges that Wolk discloses a method of forming a donor element. He admits that Wolk is silent as to inspecting the donor element prior to transfer and that the light emitting layer is unpatterned. He now cites Gaudiana *et al.* instead of Jackson *et al.* as teaching that unpatterned light-emitting layers are known in the art. Kunimoto is urged to suggest the inspection of coating material on a coated substrate.

The combination of references fails to suggest a method of making an OLED in which a donor element is inspected prior to using it to transfer an unpatterned emissive layer as claimed in claim 4. Claim 4 is directed to a method of manufacturing an OLED device which emits white light. It requires an inspection step prior to transfer of unpatterned layer(s) from a flexible donor support to an OLED device that produces white light. Claim 4 moves the coated donor support into a transfer position with the OLED device and forms an unpatterned light-emitting layer(s). The same arguments applied to claim 1 with respect to Wolk and Gaudiana *et al.* also apply to claim 4 since none of these references form unpatterned layer(s) from a coated donor support.

Kunimoto *et al.* disclose fluorescent maleimides. Various uses are disclosed for these compounds. In one embodiment, the compounds are used to form the light-emitting layer in an EL device. In another embodiment, the compounds are used as UV fluorescent materials for void detection, *e.g.*, for so-called OEM (original equipment manufacturer) applications such as automotive electrocoats and subsequent layers, for example primer surfaces, as well as industrial applications in general. Once the coating compositions are cured, the corresponding coatings can be inspected with the use of a UV-lamp. Defects or voids as a result of misapplication or artificially applied defects can be easily detected, because the used fluorescent compounds exhibit intense fluorescence only at the voids (so-called "edge fluorescence"). This allows the "instant possibility of repair."[6]

There is no suggestion of using void detection/inspection of parts in the EL embodiment. It is significant that Kunimoto *et al.* uses their compounds both as the light emitting layer in an EL device and for void detection in processes in which layers such as

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[6] U.S. 6,258,954 at column 27, line 42.

automobile paints are coated, yet clearly does not invoke the inspection capability of the compounds when they are used in the EL embodiment. This is clear evidence that it would not have been obvious to inspect layers in an EL device based on Kunimoto *et al.*

Furthermore, the inspection in Kunimoto is inspection of a finally-formed coating and not inspection of a donor support prior to coating. Applicant fails to see how Kunimoto et al is relevant to claim 4, or how it can reasonably be combined with Wolk or any of the other references.

In summary, claims 1 and 2 would not have been obvious under 35 USC 103(a) based on Wolk (US 6,194,119) in view of Gaudiana *et al.* (US 6,624,839). The combination of references fails to suggest a method of making an OLED in which a donor element transfers an unpatterned emissive layer as recited in claim 1. Wolk only teaches imagewise transfer, and even the addition of Gaudiana *et al.* to Wolk would not have suggested transfer of an unpatterned emissive layer as presently claimed. In particular, Wolk does not disclose or suggest forming an unpatterned light-emitting layer that is capable of emitting white light. Moreover, the proposed modification of Wolk based on Gaudiana *et al.* impermissibly changes the principle of operation of Wolk.

Claim 2 is separately patentable over claim 1. Wolk discloses selective transfer from a donor element that has a contiguous layer of material that is selectively transferred to a receptor in imagewise fashion. Claim 2 relates to nonselective ("unpatterned") transfer from a donor element that has discontinuous patches of material that is nonselectively transferred to a receptor to produce an unpatterned light-emitting layer. Thus, no *prima facie* case of obviousness exists with respect to claim 2.

Claim 4 would not have been obvious under 35 USC 103(a) based on Wolk (US 6,194,119) in view of Kunimoto *et al.* (US 6,258,954) and Gaudiana *et al.* (US 6,624,839). The combination of references fails to suggest a method of making an OLED in which a donor element is inspected prior to using it to transfer an unpatterned emissive layer as claimed in claim 4.

If there are any problems with this response, or if the examiner believes that a telephone interview would advance the prosecution of the present application, Applicant's

attorney would appreciate a telephone call. In view of the foregoing, it is believed none of the references, taken singly or in combination, disclose the claimed invention. Accordingly, this application is believed to be in condition for allowance, the notice of which is respectfully requested.

Respectfully submitted,

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If the Examiner is unable to reach the Applicant(s) Attorney at the telephone number provided, the Examiner is requested to communicate with Eastman Kodak Company Patent Operations at (585) 477-4656.